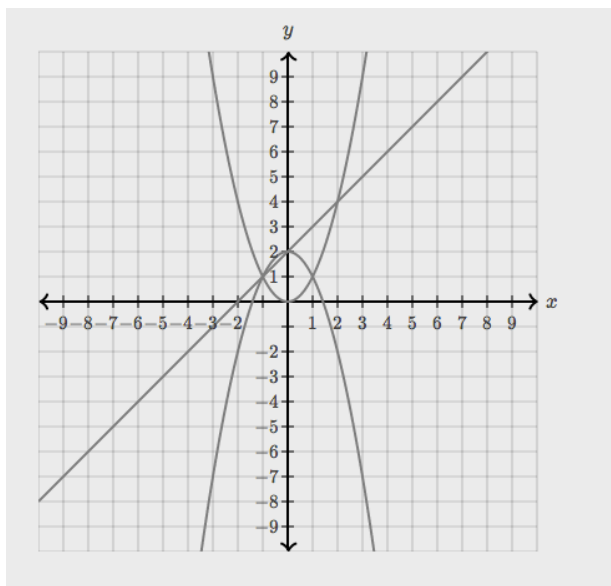


Nonlinear equation graphs

The equations $y = \frac{3}{x+4}$ and $y = \frac{3}{x+4} - 3$ are graphed in the xy -plane. Which of the following must be true of the asymptotes of the graphs of the two equations?

- A Both graphs have a vertical asymptote at $x = 4$.
- B Both graphs have a vertical asymptote at $x = -4$.
- C $y = \frac{3}{x+4}$ has a horizontal asymptote at $y = 0$, and $y = \frac{3}{x+4} - 3$ has a horizontal asymptote at $y = 3$.
- D $y = \frac{3}{x+4}$ has a vertical asymptote at $x = 0$, and $y = \frac{3}{x+4} - 3$ has a vertical asymptote at $x = -3$.

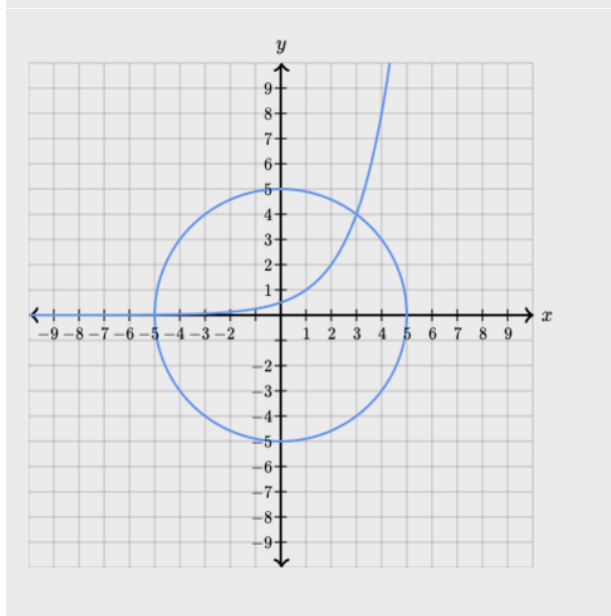


The system of equations represented by the graph in the xy -plane at left is:

$$\begin{aligned} y &= x^2 \\ y &= -x^2 + 2 \\ y &= x + 2 \end{aligned}$$

Which of the following lists all solutions to the system of equations?

- A $(-1, 1)$
- B $(0, 2)$
- C $(0, 2)$ and $(2, 4)$
- D $(-1, -1)$, $(0, 2)$, $(1, 1)$, and $(2, 4)$

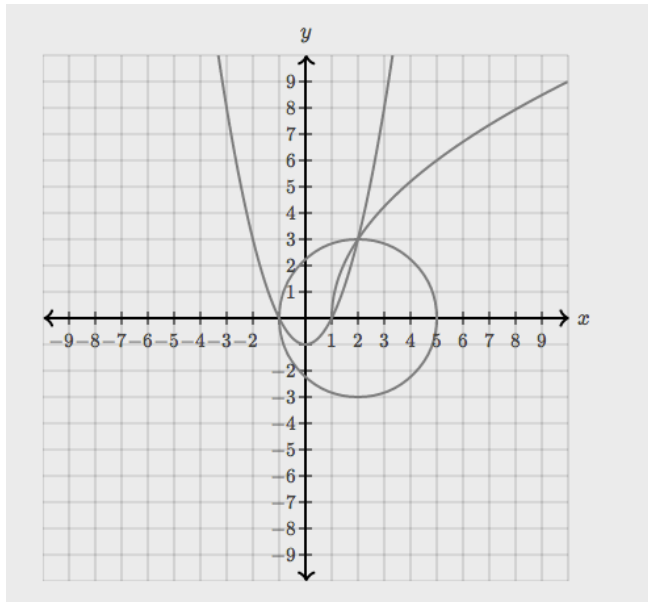


$$\begin{aligned} y &= 2^{x-1} \\ x^2 + y^2 &= 25 \end{aligned}$$

A system of two equations and their graphs in the xy -plane are shown at left. Which of the following ordered pairs is a solution to the system of equations?

- A $(3, 4)$
- B $(5, 0)$
- C $(-5, 0)$
- D $(4, 3)$

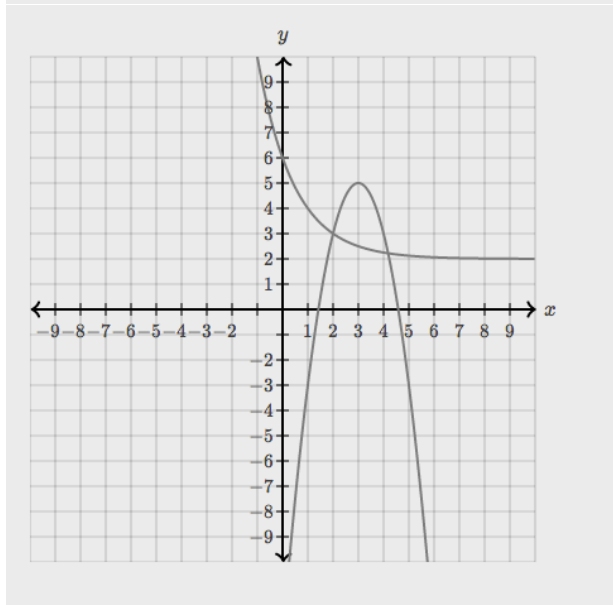
Nonlinear equation graphs



The system of equations represented by the graph at left is:

$$\begin{aligned} 9 &= (x-2)^2 + y^2 \\ y &= x^2 - 1 \\ y &= 3\sqrt{x-1} \end{aligned}$$

How many solutions does the system have?



The system of equations represented by the graph in the xy -plane at left is:

$$\begin{aligned} y &= -2(x-3)^2 + 5 \\ y &= 0.5\sqrt{x-2} + 2 \end{aligned}$$

Which of the following ordered pairs is a solution to the system of equations graphed above?

(A) (2, 3)

(B) (3, 2)

(C) (2, 4)

(D) (4, 2)